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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,926	03/27/2006	Christian Block	14219-101US1 P2003,0217 U	1860
26161 7590 07/18/2007 FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER FUTEL, GAYLA S	
			ART UNIT 2618	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/552,926

Applicant(s)

BLOCK ET AL.

Examiner

Gayla Futel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-51 is/are pending in the application.
- 4a) Of the above claim(s) 25-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 20-22, 40-44 and 47 is/are rejected.
- 7) ☒ Claim(s) 23, 24, 45, 46, 48-51 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>Oct. 11, 2005</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Species I as defined in figures 1-5E, Species II as defined in figures, 9, 10A and 10B and Species III as defined in figures 6-8.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

2. The claims are deemed to correspond to the species listed above in the following manner:

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Species I, claims 20-24 and 40-51; Species II, claims 25-28; and Species III, claims 29-39.

The following claim(s) are generic: none.

3. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: Species I requires two signal paths and two filters with a switch located between the signal paths. Species II requires three signal paths, three filters, a switch between the signal paths, and a duplexer. Species III requires two signal paths, two filters, and the switch is located within the signal path.

4. During a telephone conversation with Paul Pysheer on 06/26/2007 a provisional election was made with traverse to prosecute the invention of Species I, claims 20-24 and 40-51. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

6. Claim 22 objected to because of the following informalities: On lines 3 and 5 of the claim, a space is needed between "radio" and "frequency".
- Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 43 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structure of the parallel branch. The applicant states in the claim that the parallel branch is connected to the output of at least one of the first and second signal paths. However, there is no indication of where the other end of the parallel branch is to be connected in the claim.

9. Claim 47 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant states in the claim that the output circuitry comprises a further switch, the output circuitry being located in the shared output signal path. It is unclear which output circuitry the applicant

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is referring to since the claim would have output circuitry in both the parallel branch and the shared output signal path.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 20, 22, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Pesola et al. (US Patent No. 6,014,551).

12. Regarding claim 20, Pesola et al. anticipates a front-end circuit comprising:

- A first signal path comprising a first filter (**Fig. 3, #33**);
- A second signal path comprising a second filter (**Fig. 3, #34**);
- A switch having an output connected to inputs of the first and second signal paths (**Fig. 3, #32**); and
- An input circuit to provide signals to the switch, the input circuit comprising an antenna connector (**Fig. 3, #38**);
- Wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path (**Fig. 3**);

-Wherein the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter (**Col. 4, line 67-Col. 5, line 4**); and

-Wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system (**Col. 1, lines 6-13**).

13. Regarding claim 22, Pesola et al. anticipates the front-end circuit of claim 20 as stated above. Pesola et al. further anticipates the circuit wherein the first signal path comprises a first reception path assigned to a first mobile radio system and a first radio frequency band (**Col. 4, lines 35-38**); and wherein the second signal path comprises a second reception path assigned to a second mobile radio system and a second radio frequency band (**Col. 4, lines 41-43**).

14. Regarding claim 42, Pesola et al. anticipates the front-end circuit of claim 20 as stated above. Pesola et al. further anticipates the front-end circuit further comprising output circuitry located in the shared output signal path (**Fig. 3, #35**).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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16. Claims 21, 40 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pesola et al. (US Patent No. 6,014,551) in view of Takagi (US PG Publication No. 2002/0049075).

17. Regarding claim 21, Pesola et al. teaches the front-end circuit of claim 20 as stated above. However, Pesola et al. fails to teach the front-end circuit further comprising a further switch located in at least one of the first and second signal paths. Takagi teaches a multi-band portable radio terminal with a switch that selects signal paths based on the GSM and DCS system modes (**Paragraph 57**). Within those signal paths, there is an additional switch (**Fig. 1, #514, 515**). It would have been obvious to one of ordinary skill in the art to use the switches of Takagi in the front-end circuit of Pesola et al. If the mode of the signal being received by the front-end circuit of Pesola et al. is not a continuously transmitting and receiving power, then the switches of Takagi are useful for breaking the circuit when the remaining parts are not needed and therefore conserving power.

18. Regarding claim 40, Pesola et al. teaches the front-end circuit of claim 20 as stated above. However, Pesola et al. fails to teach all the components of the front-end circuit are integrated in a common front-end module. Takagi teaches the components of a multi-band transmission system integrated together on a chip (**Paragraph 31**). It would have been obvious to one of ordinary skill in the art to integrate the front-end circuit in a common front-end module because it reduces the amount of space needed in the transceiver.

19. Regarding claim 44, Pesola et al. and Takagi teach the front-end circuit of claim 21 as stated above. Takagi further teaches the further switch is located in

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the first signal path between the antenna connector and the first filter (**Fig. 1, #514**); or wherein the further switch is located in the second signal path between the antenna connector and the second filter (**Fig. 1, #515**). The front-end circuit of Takagi is configured for three bands/modes. Just looking at the GSM and DCS modes, the switches are between the input circuitry and the filters in the GSM and DCS signal paths.

20. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pesola et al. (US Patent No. 6,014,551) in view of Kim (US Patent No. 7,155,184). Pesola et al. teaches the front-end circuit of claim 20 as stated above. However, Pesola et al. fails to teach impedance-matching circuitry is in the first signal path, the impedance matching circuitry for making an output impedance of the first signal path be high in a pass band of the second signal path; or wherein the impedance matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path. Kim teaches a multi-band terminal that operates with impedance matching units in the signal paths (**Col. 4, lines 23-31**). It would have been obvious to one of ordinary skill in the art to use impedance matching units in the signal paths because by doing so, the impedance of the signal paths would match and the transfer of the signal power between the filters would be avoided.

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Allowable Subject Matter

21. Claims 23, 24, 45, 46, 48-51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Frank (US Patent No. 6,845,231)
- Nakamura et al. (US Patent No. 4,980,660)
- Hagn (US PG Publication 2002/0090974)
- Kuiri (US Patent No. 6,798,294)
- Peckham et al. (US Patent No. 6,298,224)
- Watanabe et al. (US PG Publication No. 2003/0199271)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gayla Futel whose telephone number is 571-270-3008. The examiner can normally be reached on Mon-Thur 7:00 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana Le can be reached on 571-272-7891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GF



7-09 -07

LANA LE
PRIMARY EXAMINER